

## Meningococcal Disease

### *For Service members*

March 2008

#### Important Facts

- Meningococcal disease is a potentially fatal condition resulting from a bacteria called *Neisseria meningitidis*, or meningococcus.
- Meningococcal disease is a medical emergency, and immediate diagnosis is necessary so that effective medical treatment can be started early.
- The bacteria are spread through very close contact (kissing, coughing, or sharing eating and drinking utensils), or living in close quarters in college dormitories or military barracks.
- About 10 to 25% of the population may carry the bacteria in their nose or throat, and not show signs of illness.

#### What is meningococcal disease?

Meningococcal disease is an infection caused by bacteria called *Neisseria meningitidis*, or meningococcus. The bacteria are normally carried by 10 – 25% of the population usually without causing apparent effects, but are responsible for sporadic epidemics, or clusters of disease. Infection caused by the bacteria can be severe, and may result in brain damage, hearing loss, loss of limbs, or death. Two important types of infections can occur, including “**meningitis**”, an infection of the fluid around the spinal cord and brain, and “**septicemia**”, a very serious blood infection that often results in death when due to these bacteria.

#### What are the signs and symptoms of meningococcal disease?

The symptoms of meningococcal disease vary depending on whether the infection is around the spinal cord and brain (meningitis), or in the blood (septicemia). For individuals over the age of 2 years, symptoms of meningococcal meningitis include fever, chills, headache, muscle aches, stiff neck, nausea, vomiting, sleepiness or confusion, and discomfort looking into bright lights. In those younger than the age of 2 years, fever, headache, and neck stiffness may be absent or difficult to detect. In such instances, a child's only symptoms may include reduced activity, irritability, vomiting, or poor feeding. As the disease progresses, patients of any age may have seizures. Infection in the blood, or “**septicemia**”, is associated with a characteristic skin rash, and/or bruising.

#### How is meningococcal infection diagnosed?

Meningococcal disease is a medical emergency, and early diagnosis and treatment are critical in avoiding serious complications and death. If symptoms occur, the patient should see a doctor immediately. The diagnosis is made (and antibiotics started) by the health care provider based on symptoms, physical findings, and examination of the spinal fluid, and/or blood. It is later confirmed by growing the bacteria from the spinal fluid, obtained by performing a spinal tap, or the blood.

Many symptoms of meningococcal disease are similar to those caused by other bacteria and viruses that may also infect the fluid around the brain and spinal cord. The examination and laboratory tests usually can distinguish other infections from meningococcal disease. The other diseases, especially those caused by viruses, usually are not as serious as meningococcal disease, and may not require specific treatment. Some of the other infections can now be prevented with vaccines and are now less common, so that meningococcal disease has assumed greater importance.

#### Can meningococcal infection be treated?

If meningococcal disease is suspected, appropriate antibiotics are started immediately after samples of spinal fluid and blood are obtained. Even with appropriate therapy, however, death or permanent complications such as hearing loss, brain damage, or loss of limbs can occur.

#### How is meningococcal infection spread?

Meningococcal infection is spread through the exchange of respiratory and throat secretions (i.e., coughing, kissing, or sharing drinking glasses, utensils, cigarettes or toothbrushes). The disease is not spread by casual contact or by simply breathing the air where a person carrying the bacteria or with the disease has been. A person may transmit the infection even if they're not showing symptoms of meningococcal infection.

#### What conditions might make a person more likely to become infected with meningococcal bacteria?

Most cases of meningitis due to *Neisseria meningitidis* occur in children, but the bacteria are also an important cause of

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meningitis in adults. Those who live in crowded conditions, such as college students and military recruits, are at increased risk of meningococcal infection. People whose immune systems are impaired, including those without a spleen and those who have a chronic illness such as HIV/AIDS, or certain cancers, are also more susceptible to meningococcal infection. Likewise, people who take medications for rheumatoid arthritis or that suppress their immune systems, such as steroids, are at higher risk. Other risk factors for meningococcal infection are smoking or exposure to second-hand smoke, and recent respiratory infection. Finally, travel to areas of the world with high rates of meningococcal infection, such as the "Meningitis Belt" of sub-Saharan Africa, increases an individual's risk.

### **Should people who have been in contact with someone diagnosed with meningococcal infection receive antibiotics even if they are not sick?**

Only people who have been in close contact with the ill person should receive antibiotics to prevent illness and reduce the potential for spreading the bacteria to others. Close contacts are generally household members, intimate contacts, classmates, and close friends who have exchanged respiratory or oral secretions with the ill person through activities such as kissing or sharing drinking glass, eating utensils, cigarettes, or toothbrushes.

### **Is there a vaccine to prevent meningococcal disease?**

There are currently two highly effective vaccines that protect against meningococcal disease. Both protect against most of the

common types of *Neisseria meningitidis*. The vaccines contain no live bacteria, so it is impossible to become infected from them. Several medical organizations, including the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices, the American Academy of Family Physicians, and the American Academy of Pediatrics, now recommend routine vaccination of everyone aged 11-18. It is also recommended for military recruits, college freshmen living in dormitories, and persons with impaired immunity. Others at increased risk for the disease, such as certain travelers, should also obtain the vaccine.

Some of the other infections that cause symptoms which overlap with those of meningococcal meningitis may also be prevented with vaccines. Before the 1990s, the leading cause of bacterial pneumonia was *Haemophilus influenzae* type b (Hib). However, babies now receive vaccinations against this disease routinely, and this immunization generally is required for enrollment in school. The other important cause of bacterial meningitis is called *Streptococcus pneumoniae*. In recent years, persons over 65 years of age, as well as some younger persons with chronic medical problems, were encouraged to receive this vaccine. Now a newer, and more effective, "pneumococcal conjugate vaccine" is available that is recommended for all children under 2 years of age, and for other children and adults with specific risk factors. With these changes in availability of vaccines, the major causes of bacterial meningitis are becoming more easily controlled.

## **Where Do I Get More Information?**

### **U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM)**

Phone: (800) 222-9698

<http://chppm-www.apgea.army.mil>

### **DOD Force Health Protection & Readiness (FHP&R)**

Phone: (800) 497-6261

<http://www.deploymentlink.osd.mil>

### **Air Force Institute for Operational Health (AFIOH)**

Phone: (888) 232-3764

<http://www.brooks.af.mil/afioh/>

### **Navy Environmental Health Center (NEHC)**

Phone: (757) 953-0700

<http://www-nehc.med.navy.mil>

### **DOD Deployment Health Clinical Center (DHCC)**

Phone: (866) 559-1627

<http://www.pdhealth.mil/>

### **National Foundation for Infectious Disease:**

[http://nfid.org/meningitis/consumers\\_factsheet.html](http://nfid.org/meningitis/consumers_factsheet.html)

### **Advisory Council on Immunization Practices (ACIP):**

<http://www.cdc.gov/vaccines/vpd-vac/mening/default.htm>

### **Centers for Disease Control and Prevention (CDC):**

[http://www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/meningococcal_g.htm)

### **CDC 2007 Child & Adolescent Immunization Schedules:**

<http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm>

### **Military Vaccine Agency (MILVAX):**

<http://www.vaccines.army.mil/default.aspx?cnt=disease/minidv&dID=36>



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